CLAIMS

1. A device for measuring alternating voltage in a conductor under test, the device comprising first and second sets of capacitive voltage sensors mounted on an electrically insulating support member, the first set of sensors being positioned along a first notional closed path and being connected in parallel between a first signal conductor and a reference conductor, the second set of sensors being positioned along a second notional closed path surrounding the first closed path and being connected in parallel between a second signal conductor and the same reference conductor as the first set, the support member being configured to allow a conductor under test to be introduced into the interior of the device so that the sensors surround the axis of the conductor under test, and each sensor having a signal electrode connected to the respective signal conductor and a reference electrode connected to the reference conductor, the sensors of the first set being orientated with the signal electrode facing the conductor under test, and the sensors of the second set being orientated with the signal electrode facing away from the conductor under test, and the device further including means for deriving the voltage in the conductor under test as a function of the voltage across the first signal conductor and the reference conductor and the

voltage across the second signal conductor and the reference conductor.

2. A device as claimed in claim 1, wherein each sensor of the second set is radially aligned, relative to the axis of a conductor under test, with a respective sensor of the first set.

3. A device as claimed in claim 1, wherein each of said sensors is substantially identical to the others.

4. A device as claimed in claim 1, wherein the notional closed paths are circular.

5. A device as claimed in claim 1, wherein in each set the sensors are substantially equally spaced around the respective closed path.

6. A device as claimed in claim 2, wherein each sensor of the second set is integral with a sensor of the first set whereby a plurality of composite sensors are arranged to provide both the first and second sets arranged around closely spaced first and second notional paths.

7. A device as claimed in claim 1, wherein each reference electrode is substantially larger in area than the corresponding signal electrode so as to shield the latter from electric fields on the side of the sensor opposite the signal electrode.

8. A device as claimed in claim 1, wherein each sensor comprises a parallel plate capacitor whose plates, constituted by the signal and reference electrodes, are substantially normal to the radial direction of the conductor under test.

9. A device as claimed in claim 1, wherein each sensor comprises multiple insulating substrates laminated together with a signal electrode and at least one reference electrode separated by at least one of said insulating substrates.

10. A device as claimed in claim 9, wherein the support member comprises multiple insulating substrates laminated together with the sensors inserted in aligned apertures in the substrates, the sensors being connected in parallel as aforesaid by at least one signal conductor and at least one reference conductor deposited on non-adjacent surfaces of respective support member substrates.

11. A device as claimed in claim 10, wherein in the multilayer support structure the signal conductor(s) are formed as conductive track(s) sandwiched between a pair of reference conductors also formed as conductive tracks, the width of the reference conductive tracks being substantially greater than the width of the signal conductor track(s) so that the latter is/are shielded from external electric fields.